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# Organization and Management in the Soviet Economy: The Ceaseless Search for Panaceas

A Research Paper

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*Central Intelligence Agency  
National Foreign Assessment Center*

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## **Introduction**

Over the past decade, the USSR has been engaged in an effort, unprecedented in scope and intensity, to improve organization, management, and incentives in the economy. Most of the measures adopted stem directly from the program of reform outlined by Kosygin in 1965; other approaches, such as the effort to computerize everything computerizable, are ancillary to it. The effort as a whole is aimed at raising economic efficiency as measured by labor and capital productivity and improving the quality and mix of output.

The wide-ranging approaches may be conveniently grouped under five rubrics: (1) planning; (2) organization; (3) incentives, including those for improving quality of products; (4) computerization; and (5) miscellaneous programs. The first sections of this paper (1) review developments in each area over the past decade, with particular attention to changes during 1973-77, and (2) indicate the apparent future directions as reflected in the Directives for the 10th Five-Year Plan (1976-80) and the general literature.<sup>1\*</sup> Final sections assess the success of the overall program in achieving its objectives up to now, its likely effects in the near term, and the prospects for effective reforms in the longer term.

## **Developments During 1965-77**

### **Planning**

Kosygin's program called for implementation of his economic reforms strictly within a framework of centralized planning, which was, however, to be improved in fundamental ways. First, the role of long-term plans was to be upgraded. To this end, the Five-Year Plan (FYP) was made legally binding

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\* For a discussion and list of source references, see the appendix.

and was to be a directive for enterprises. Annual plans are now drawn up taking into account the annual breakdowns set in FYPs, and incentive arrangements are supposed to allow for the degree of progress toward meeting FYP targets.

In addition, FYPs are being formulated within the framework of a 15-Year Plan (1976-90). During 1970-72, a great deal of work was set in motion to draft this plan. However, the effort was delayed by bureaucratic wrangling over planning methodology and probably also by the sheer magnitude of the task and the difficulty in getting agreement on long-range forecasts. Meanwhile, the Academy of Sciences and the State Committee for New Technology have drafted a "Comprehensive Program of Scientific-Technical Developments and Socioeconomic Consequences, 1976-90" with some 200 targets.<sup>2</sup> However, the draft of the overall 15-Year Plan is still in process of formulation.<sup>3</sup> At the 25th Congress of the Communist Party of the Soviet Union (CPSU) in 1976, Brezhnev again stressed the importance of long-term plans and the urgent need to improve their quality.

Second, the "scientific basis" for planning was to be radically upgraded. In practice, this has meant the more extensive use of mathematical forecasting models, input-output data, and optimizing techniques in planning. Although the traditional plan-formulation process remains intact, these approaches seem to be used extensively (notably in the economic research institutes) in preliminary planning work, in testing the consistency and balance of various kinds of plans, in calculating plan variants, and in making decisions about location, distribution, and mix of product in particular sectors. The "Comprehensive Program" for 1976-90, which used these techniques, aided the drafting of the 10th FYP, thus allegedly raising its "scientific basis."

Third, the system of plan indicators was to be directed more specifically toward solving problems of efficiency and product quality. As a result, an exhaustive discussion has taken place over the "correct" way to measure the efficiency of labor, capital, materials, new technology, computerized management systems, and much else. While the arguments have raged, the State Planning Committee (Gosplan) has introduced many new indicators of efficiency and product quality in national and enterprise plans. The national plan for 1976-80 and the annual plan for 1977 include over 500 such targets, and reporting is required in respect to their fulfillment.<sup>4</sup> At present, Gosplan is drafting proposals for further revision of these plan indicators to stress the use of long-term norms. In particular, a reorganization of the planning of wages and investment on the basis of such norms is under active consideration.

Fourth, some planning authority was to be delegated to the enterprise level, with the aim of spurring initiative on the periphery. To accomplish this

objective, the number of directive targets set centrally for enterprises was initially cut sharply as part of the economic reform. However, all important targets were retained; in the process of implementing the reforms, new ones (labor productivity, product quality, contract fulfillment) were added through formal changes in the rules; and in practice the ministries have set many others.

Finally, to the end of "improving planning," an extensive discussion has taken place concerning so-called "complex" planning, a "system approach" to planning, and the "program-goals" approach in planning. The discussion seems to concern mainly the planning of regional complexes (such as Baikal-Amur) and the planning of integrated programs aimed at fostering scientific-technical progress (such as mechanization of labor). Judging from a barrage of discussion and criticism,<sup>5</sup> satisfactory integration of national and regional planning remains an elusive goal. Despite the increased role given to republic and local planning agencies, regional planning seems to amount mostly to adding up the relevant sectoral plans, which continue to have priority. Much work was done by economists and planners during the Ninth FYP (1971-75) to develop "complex" approaches and efficiency calculations for various kinds of regional and functional complexes. The 10th FYP includes a number of such "complex programs"—for fuel and energy, building materials, development of agriculture and associated branches, the non-Black Soil area, and Eastern regional raw materials. The Plan Directives call for further "improvements" in plan formulation via use of the program goals and "comprehensive" approaches. A revised set of methodological instructions to accomplish these and other improvements in plan making is to be published in 1978.<sup>6</sup>

### **Economic Organization**

The Kosygin reform returned stability and order to the organizational scene by abolishing the regional economic councils set up by Khrushchev and restoring the time-honored ministerial (branch) system of economic organization. The reforms also centralized key functions in three powerful new State Committees—for Prices (Gostsen), for Industrial Supply (Gossnab), and for Science and Technology (Gostekhnika). Changes in the upper levels of the bureaucracy since 1965 have been few and of minor importance but generally in the direction of greater centralization and proliferation of agencies: several new ministries, the splitting of several, and the conversion of some from union-republic to all-union status. The economic reforms were supposed to be carried out without increasing the size and cost of the central bureaucracy. When both rose substantially during 1966-70, a Party-Council of Ministers Decree ordered annual reductions in administrative costs, with the required annual "savings" automatically confiscated by the state budget. Also, annual

campaigns have been conducted by central and financial agencies to uncover superfluous "links" and supernumeraries everywhere. Despite these efforts, employment in state administration (*apparat*) increased nearly 22 percent during 1971-76, compared with nearly 16 percent for state employment as a whole.<sup>7</sup>

A clause in the Kosygin program called for combining industrial enterprises into large associations and extending *khozraschet* (economic accountability) to the upper levels of the bureaucracy. Little progress was made in carrying out these measures during 1965-72. In April 1973, a Party-Council of Ministers Resolution directed the industrial ministries to submit plans for combining their staffs and subordinate enterprises and research institutes into various kinds of associations.<sup>8</sup> In general, the main administrations (*glavki*) of the ministries were to be converted into *khozraschet* "industrial associations" with many subordinate associations and enterprises. Enterprises were to be merged into "production associations," and research institutes and enterprises were to be combined into "science-production associations." These assorted amalgamations were supposed to yield a variety of efficiency gains, such as economies of scale, increased specialization, reduction in administrative employment and costs, improved incentive structures, and closer ties between research and development and production.

This latest "reform by reorganization" has been proceeding with all deliberate speed. The number of production and science-production associations increased from 1,101 at the beginning of 1973 to 2,314 as of 1 January 1976.<sup>9</sup> As of 1 April 1977, there were 3,450 such associations, producing 45 percent of total industrial output.<sup>10</sup> Over 100 of them are science-production associations. After long delays, the reorganization plans of some 25 industrial ministries have been approved and are in process of implementation and revision.<sup>11</sup> An authoritative source states that, by the end of 1980, associations will account for about 75 percent of total industrial output.<sup>12</sup> The Directives for the 10th FYP call for the completion of the reorganization in the industrial sector by 1980 and its extension to the construction sector.

The Soviet press reports extensively on the new forms of organization.<sup>13</sup> On the one hand, individual production associations claim large gains in efficiency, and ministries report large savings in administrative costs and personnel; such reporting is reminiscent of the glowing results claimed for the first groups of enterprises put under the economic reform in the late 1960s. On the other hand, discussion of numerous difficulties in implementing the new schemes is extensive. First of all, it is evident that a great variety of organizational arrangements are being created and that the situation is still much in flux. Some ministries have abolished branch *glavki*, but others have not done so. In some ministries, branch *glavki* have been renamed "industrial

associations," of which there are now some 500, with little other change. In general, the new ministerial organizational structures and the behavior of the component units bear a striking resemblance to past arrangements and conduct. The new industrial associations often manage the same enterprises as before, but now combined into production associations. Contrary to the original intent, there has been almost no shifting of enterprises among ministries, so as to create associations with similar product lists. Except in a few "Hero" associations, the desired specialization of output within production associations does not seem to be taking place either. Although the number of independent enterprises apparently dropped by some 7,500 during 1973-76, the new production associations still contain large numbers of individual enterprises (that is, those operating on an independent balance). There were 6,979 such enterprises as of 1 October 1976, when the average production association contained 4.6 units.<sup>14</sup> At the beginning of 1976, nearly 35 percent of these associations were in the light and food industries and nearly one-fifth in the timber, paper, and related industries.<sup>15</sup> Many associations are quite small (less than 500 employees), and others are huge (100,000 employees in the average coal industry association). The various kinds of associations have experienced numerous problems in operating under the new arrangements, many of them stemming from uncertainty about their rights and responsibilities. To clarify matters, the authorities have published statutes delineating the rights and responsibilities of the various types of associations and their component enterprises.<sup>16</sup>

The reforms called for the industrial bureaucracy ultimately to operate on the principle of full *khozraschet*. The principle means that the ministries and their subunits would finance all their activities from their own funds, including investment and staff salaries, with no grants from the state budget. The newly created industrial associations are supposed to operate on this principle, although this step apparently has not yet been taken in respect to most of them.<sup>17</sup> They are given incentive funds and bonus plans like those of subordinate associations and enterprises, and their employees are rewarded in accord with the economic performance of the industrial associations as a whole. They have reserve funds of various kinds to "even-out" the performance of subordinate units. Ministries also have rescue funds to be used for similar purposes. With minor exceptions, the ministries remain budget-supported organizations. Only one all-union ministry (the Ministry of Instrument Making, Automation Equipment, and Control Systems), two motor transport organizations, and several ministries in Belorussia and Latvia operate under "full self-financing."<sup>18</sup> A decision was recently made to add three all-union machinery ministries to this list, and preparations are under way to add others.<sup>19</sup> Although the organizations that have operated in this way for some time report successes (along with problems), there has been little push to



extend the experiments. Many ministries, especially those in the extractive industries, do not earn enough profit to fully finance their activities, and substantial price revisions would be needed to yield the requisite profit. Nonetheless, further extension is strongly urged in the economic literature.

As part of the advocacy of "comprehensive" and "program-goals" approaches to planning and management, proposals have been made to create "supraministries" of some kind to oversee groups of related activities.<sup>20</sup> Although no concrete plans to do so are yet in evidence, Brezhnev may have had such an idea in mind, when at the 25th Party Congress he called for "resolving" the "question of the creation of systems for the management of groups of similar branches (for instance, the fuel and power branch, transportation, and the production and processing of agricultural products)."

### Incentives

The past decade has witnessed a ceaseless (and largely fruitless) search for a set of plan targets and associated incentive arrangements that would induce enterprises to economize on resources and try to satisfy customers. The original rules of the reform (1) fixed sales (in place of gross value of output—*Val*), profits, and profitability (return on capital) as key plan targets and (2) tied managerial rewards to meeting plans for these targets. As problems with the new indicators multiplied and desired benefits failed to be significant, the authorities proceeded to alter the newly established success indicators by making several changes in the rules for forming enterprise incentive funds—the principal modifications being made in 1972<sup>21</sup> and 1976<sup>22</sup>—and by tightening controls over the size and expenditure of these funds. Five principal areas of focus have evolved: labor productivity, capital productivity, fulfillment of contracts, product quality, and an effort to induce enterprises to adopt more demanding (taut) plans. Since the attack on these chronic problem areas is wide ranging, it is best to deal with each one separately.

#### Labor Productivity

This measure of efficiency has a hallowed place in the hierarchy of plan targets for ideological reasons, including Lenin's declaration that "in the final analysis, labor productivity is the main thing, the most important thing for the victory of Socialism." Aside from ideology, stress on labor productivity makes sense for a growth-oriented economy faced with declining increments to the working-age population. Although the target for increasing labor productivity was not included among those governing incentive funds in the original rules of the reform, it was added to the list in the 1972 revision of the rules as a determinant of both the size of bonus funds and the bonuses themselves. This emphasis was retained in the 1976 revisions, when labor productivity was

made one of two obligatory indicators for determining for most enterprises the size of incentive funds and managerial bonuses. A spirited debate among planners on how to define the term *labor productivity* has culminated in a typically bureaucratic solution—a provision of the 1976 incentive rules allowing the ministries to decide which definition best suits the particularities of their industries.

In addition to these provisions of the general incentive arrangements, the Soviets have been conducting a variety of experiments with schemes to stimulate labor productivity the most famous of which is the Shchekino system, designed specifically to induce savings in labor usage; under this plan, wage savings from reduced employment are used in part to reward the remaining employees for taking on additional work. Despite much publicity and high-level Party support, this scheme has not been widely adopted (by only about 1,000 enterprises<sup>23</sup>) and seems to have had minimal impact in reducing the chronic labor hoarding long characteristic of Soviet industry.

#### Capital Productivity

In the original rules of the 1965 reform, two approaches were used to stimulate more efficient use of capital by producing enterprises. The first was the imposition of a capital charge generally set at 6 percent of total fixed and working capital, but with many exceptions. Although Soviet sources agree that the charge is too low and has had little if any incentive effect, no essential changes have been made in the initial provisions. A second approach was to establish profitability (profits as a percent of fixed and working capital) as one of the mandatory plan indicators to which incentive funds and bonuses were linked. This provision was maintained in the 1972 revision of the rules, but in the 1976 revision the ministries are allowed to decide whether profitability or the capital/output ratio or neither one shall influence the size of incentive funds and bonuses.

#### Fulfillment of Delivery Contracts

The original rules of the reform substituted total sales for *Val* as a mandatory success indicator and also provided for greatly expanded use of interfirm contracts, both measures being designed to induce enterprises to improve quality and to pay attention to customers' needs. In practice, however, sales turned out to be no better than *Val* as a stimulant to customer orientation, and contracts proved to be mostly formalistic and difficult to enforce in the continuing sellers' market. In 1974 a decree was adopted that stated that output plans would be considered fulfilled only if all terms of delivery contracts were adhered to.<sup>24</sup> This decree evidently proved difficult to implement. Nevertheless, the 1976 rules build contract fulfillment into the

basic incentive system by providing that the value of nondelivered goods shall be deducted from total sales and that incentive funds shall be reduced by fixed percentages related to the extent of underfulfillment of plans for sales. This rule applies regardless of whether or not the target for sales or output itself (*Val*) is one of the mandatory indicators that determine the size of the funds; the 1976 rules accord the ministries the right to make that choice. Failure to meet delivery contracts is supposed to result in denial of bonuses to managerial personnel, beginning in 1978.

### Quality of Products

The attack on this longstanding problem has been many faceted, some of the measures adopted not being directly related to incentives per se. Of the latter, the most significant, perhaps, is the greatly increased emphasis on setting technical standards for products, with a concomitant upgrading of the status of the State Committee on Standards. A Party-government decree in 1970,<sup>25</sup> calling for a big effort along these lines, was followed by a Party Resolution in 1975 excoriating one and all for footdragging and demanding more action on the quality front.<sup>26</sup> To put teeth into the efficacy of standards, penalties for violating state standards are imposed by deducting the value of nonstandard products from total sales and profits and by imposing fines for shipping such output. In 1975, some 2,500 standards were revised annually, compared with 700 before 1970.<sup>27</sup> In the 10th FYP the standardization effort and the "quality" effort are supposed to be merged into a comprehensive "Unified State System for the Control of Product Quality." In the meanwhile, Party resolutions have approved for emulation particular quality control systems introduced in certain enterprises, notably the L'vov system.<sup>28</sup>

The effort to tie improvement in product quality to the general incentive arrangements is complex.<sup>29</sup> There was no direct tie-in in the original rules of the 1965 reform. Beginning in 1973, however, the ministries were directed to classify all their products into three categories: "Highest" (meets best domestic and foreign standards and is competitive in world markets), "First" (meets average domestic standards), and "Second" (obsolete). The ministries also were to set for enterprises annual plan targets for raising the share of "H" category goods and reducing the share of "S" category goods. Price markups and discounts were worked out for the two categories. Along with all this, a separate program provided for awarding the "State Seal of Quality" emblems to superior goods; these also have price markups. In the 10th FYP—the "Plan of Efficiency and Quality"—these arrangements have been combined and modified. As of now, they are as follows: (1) a State Certification Commission (rather than the ministries) now certifies all products as to quality category for one to three years; (2) all "H" category goods get the Seal of Quality, which

entitles them to increased prices for two to three years to reflect a markup of 50 to 100 percent over the normal rates of profit; (3) as much as 70 percent of these extra profits may be allocated to incentive funds and the rest goes into the state budget; (4) meeting plans for raising the share of "H" category goods in total output is now a mandatory success indicator for most enterprises, which directly affects the size of enterprise incentive funds and bonuses; (5) ministries have reserve funds for rewarding enterprises that perform outstanding feats in improving product quality; the 10th FYP calls for a 135-percent rise in the number of products with the Seal of Quality, from 27,600 in 1975 (4,000 in 1970) to some 65,000 in 1980; and (6) special incentive arrangements apply to consumer goods, for which prices rise by grade, and new ("N") products of certain kinds have special price-related incentive schemes.

Selected Soviet Reporting  
on Product Quality

Organization	Change in Percentage Share of "H" Class Output in	
	Total Output	Period
All Industry, Latvia <sup>30</sup>	2.1 to 10.3	1972-75
Ministry of the Petroleum Refining and Petrochemicals Industry <sup>31</sup>	5.1 to 20.6	1972-75
Ministry of Heavy and Trans- port Machine Building <sup>32</sup>	6.6 to 18.7	1972-75
Ministry of the Electrical Equipment Industry <sup>33</sup>	3.0 to 34.1	1972-75
Forging and stamping machinery <sup>34</sup>	2.1 to 12.5	1972-75
Ministry of the Chemical Industry <sup>35</sup>	2.2 to 16.0*	1972-76

\*Products with State Seal of Quality.

All this has produced a "Cult of the Qual," which may even have eclipsed the familiar "Cult of the Val." The Soviet press reports a veritable quality explosion (probably accompanied by a price explosion that is hidden by the official price indexes). The table provides some of this reporting. The press also reports that 31 percent of the output of the Ministry of the Automotive Industry in 1974 was "H" category and that plans for 1980 call for over 40 percent in that ministry, 30 to 40 percent in most machinery branches as a whole, and 25 percent in the chemical industry. <sup>36</sup> On the other hand, the share of "H" category products was only 7.5 percent for industry as a whole in early 1977, 3.7 percent in construction materials, 4.3 percent in ferrous metallurgy, and 4.4 percent in light industry. <sup>37</sup> The number of products awarded the Seal of Quality rose from 1,700 in 1970 to 20,900 in 1976; at the beginning of 1977, 34,500 products had the Seal of Quality. <sup>38</sup> At the same

time, there seems to be little diminution in the volume of press reporting about poor quality of individual products, particularly consumer goods.

#### **Taut Planning**

When provisions of the original 1965 reform failed to induce enterprises to disclose the alleged ubiquitous "hidden reserves" for adding to production and productivity, the 1972 revisions of the incentive rules introduced a complex scheme whereby incentive funds were increased in prescribed amounts when enterprises adopted and fulfilled more demanding plans (called "counterplans") for output, profitability, and labor productivity than those originally set for them in their FYPs. Despite repeated assertions that the scheme had proved ineffective, the 1976 rules continue the arrangements, with the ministries being allowed to choose not more than three or four key plan targets out of six prescribed ones, two of which, as a rule, must be labor productivity and the share of production in the "H" category. Along with this, Socialist competitions to adopt and overfulfill "taut" plans were perennial in 1971-77 and evidently will continue to be so.

#### **Computerization**

During the past decade an enormous amount of activity has gone into the planning and introduction of so-called automated management systems (ASUs) throughout the economy. This activity has been facilitated by an explosive growth in Soviet production of computers from a very small base. During 1971-75 the annual production of general-purpose computers rose from about 700 to some 1,600, and the total stock in 1975 was about 15,000. The Soviets report the creation of 2,364 ASUs of all kinds during 1971-75 and another 295 in 1976, compared with 414 in 1966-70.<sup>39</sup> Over one-third of the total have been installed in so-called ASU enterprises (ASUPs), which seems to mean that at least one computer is used for administrative-type tasks. Another 28 percent are associated with the computerization of technological processes. Of the remainder, one-quarter have been installed at regional levels of the administrative apparatus and some 7 percent in ministries and departments. About 4 percent are described as "information processing systems," which may refer to those in the State Planning Committee (Gosplan), the Central Statistical Administration (TsSU), and similar bodies. The 10th FYP calls for continuation of the installation of such systems, aided by a planned 80-percent increase in the output of computers and software, including a tripling of the number of computers used in technological processes. In the 10th FYP, simple third-generation computers of the Ryad type are to gradually replace the primitive second-generation computers of the Minsk-32 type.

The years 1968-72 witnessed the launching of a grandiose project to design and install a statewide network of computer centers and a statewide

information processing system. Key subsystems are: ASPR (planning), ASGS (statistical reporting), ASN (data bank for storage and setting of technical norms), ASMTS (supply), ASTsen (prices), and ASGNI (scientific and technological information). Technicians were set to work to prepare designs and plans, funds were allocated evidently in large amounts, numerous coordinating and progress meetings were held, and experiments were conducted. The Soviet press has reported extensively on all this activity.<sup>40</sup> After some six to seven years, how do things seem to stand with respect to this scheme?

First, except for some of the cyberneticists, the press indicates a much more sober approach to the whole project. Second, it is clear that many people scattered throughout the bureaucracy are still engaged in designing, planning, and experimenting with the introduction of parts of the subsystems. With respect to ASPR, the "first stage," based on Minsk-32 technology, is being put into operation; this stage seems to involve mainly attempts to introduce standard documentation and activity classifiers in Gosplan and its subordinate regional bodies and to work out parts of the annual plan using computers at all levels. Great difficulties are being encountered in respect to compatibility of different computers, transmission of data, and obtaining uniformity in approach. ASGS seems to be in a quite embryonic state of development. TsSU's computers at various levels are being tied together with a view to computerizing most of the current statistical work, but its computer systems and approaches are in many respects incompatible with Gosplan's ASPR. In a word, the organization in charge of a major subsystem evidently is going its own way, using whatever computers it gets to computerize small parts of its operation. For example, Gossnab has developed via linear programming a nationwide system for allocating and distributing ferrous metals and has worked out "optimal" schemes for linking suppliers and customers. Simultaneously, the ministries are busily engaged setting up their own "branch ASUs," which often are not compatible in timing, hardware, activity classification, documentation, and whatever with the systems being developed by Gosplan, TsSU, and other national entities. Although such a "departmental" approach is universally deplored, nobody seems to be able to do anything about it. Also, the various bodies are simultaneously engaged in designing systems to convert from present Minsk-32 technology to Ryad technology, which they expect to receive in quantities during 1976-80. Undaunted and untouched by all this, people in the various Institutes of Cybernetics continue to design and redesign systems for the planning of systems for the nationwide unified, comprehensive system of the future (OGAS).

The press also reports extensively on problems associated with the use of computers at all levels of the economy.<sup>41</sup> The average computer worked 11.6 hours per day in the first half of 1975, with large variations among ministries and enterprises. Hardware is poor in quality, breaks down, and is difficult to

repair. Seemingly insuperable difficulties are encountered in designing and preparing standard programs. Peripheral equipment seems to be in chronic short supply, of poor quality and design, and unsuitable for the particular computer at hand. Computers are "distributed" to enterprises, which often do not know what to do with them; conversely, enterprises "overorder" computers and use them inefficiently. There are local shortages of programmers and trained people, especially repairmen, but, on the other hand, some labor may be surplus, for the man-machine ratio for Soviet computer use is reported to be 150 to 200 percent of Western norms. Time-sharing is developing at a snail's pace.

From such reporting, it seems that little is going right, insofar as computerizing management is concerned (as opposed to industrial process control). But this situation did not prevent Gosplan from issuing a "Standard Methodology for Calculating the Efficiency of ASUs," calculating a standard investment recovery period (3.3 years), and instructing ministries and enterprises to include plans for ASUs in their FYPs, including expected cost savings.<sup>42</sup> Nor does it prevent the flow of glowing statistics on how much money is being saved by computer use in one or another agency or enterprise ("billions of rubles" in the Ninth FYP). Finally, numerous proposals are being made for straightening out the computer mess. One specialist urges the establishment of an all-union agency charged with planning, contracting for, and installing all the computer systems in the country, along with the centralization of the production of computer-related equipment in a single ministry. The 10th FYP Directives continue the green light for computerization, "to ensure the further development and improved efficiency of automated management systems and computer centers, successively uniting them in a nationwide system for the collection and processing of information." The Plan projects cost savings from computer use amounting to 1.65 billion rubles.<sup>43</sup>

#### **Other Measures**

This section will sketch briefly what has been happening over the past decade in four areas related to the 1965 and subsequent reforms: supply, prices, finance, and management of research and development (R&D).

#### **Supply**

The management of the centralized allocation and distribution of machinery and raw materials to producer enterprises has been a chronic problem for Soviet planners, and the malfunctions of whatever system was adopted have created continuing difficulties for enterprises. The 1965 reform attacked the problems anew on several fronts. First, a newly created State

Committee (Gossnab) was given primary responsibility for the rationing of producer goods; ministerial supply systems were supposed to largely disappear. But in 1976, Gossnab still handled only about half of total wholesale trade in producer goods.<sup>44</sup> Many ministries have retained and perhaps even increased their own supply systems, despite distribution costs considerably higher than in the Gossnab system.<sup>45</sup> The reform called for extension of direct ties (long-term contracts) throughout industry; at the beginning of 1976, direct ties affected 5,500 suppliers and 25,000 customers and amounted to some 30 billion rubles (out of a total wholesale trade of 260 billion rubles).<sup>46</sup> Third, Kosygin called for a gradual transition to "wholesale trade in the means of production" (derationing). This development has not taken place, if for no other reason than that it would eliminate the need for the huge supply bureaucracy. Instead, "wholesale trade" is gradually being redefined to mean merely ordinary warehouse supply, plus supply via long-term contracts and sales in small wholesale stores. "Comprehensive supply" of construction organizations and R&D institutes is also expanding under Gossnab's aegis; under this system, Gossnab contracts to supply all needed supplies on a designated schedule.

Aside from alleviating the organizational disarray created by Khrushchev's regional economic council (*Sovnarkhoz*) system, the "reform" in supply has been essentially a "nonreform."<sup>47</sup> The construction of material balances and the determination of allocations continue to be highly centralized, with some 20,000 key products being directly allocated and distributed by Gosplan and Gossnab. Press reporting indicates that the chronic malfunctions of the supply system persist and *tolkachi* (expeditors) abound. Uncertainty in supply continues to be blamed for difficulties in mastering new technology, developing specialization, improving product quality, and establishing smooth work routines. Managers still seem to consider obtaining needed supplies to be their most vexing problem. Contract arrangements are largely formalistic and are often changed arbitrarily by the ministries. Fines for violations of contracts are ineffective, for the most part. Duplication of supply networks persists, along with the proclivity of ministries, associations, and enterprises to be their own suppliers through vertical integration.

As a result of complaints aired at the 25th Party Congress, the Council of Ministers in April 1976 established a special commission to draft a resolution setting forth measures to put things right in the supply system and to "establish a general plan for the management of this branch."<sup>48</sup> The 10th FYP calls for completion of the establishment of long-term "direct ties" for all producers and consumers of standard, serially produced goods. As noted earlier, new incentive rules now provide for reduction of bonus funds and bonuses in the event of failure to meet contract deliveries in detail, a provision



that surely will be difficult to enforce and will likely have little beneficial effect in a continuing situation of excess demand. The project to computerize the entire Gossnab system is now back in the "preliminary design stage," after a shift was made from an "element by element" approach to a "systems approach."<sup>49</sup>

### Prices

As envisioned in the original reforms, prices were to be a key "lever" in spurring an improvement in product quality and the production and adoption of new products and new technology.<sup>50</sup> The general price reform of 1966-67 brought enterprise wholesale prices more or less in line with costs and provided greater differentiation. Since then, the newly created price Czar (Gostsen) has been energetically engaged in administering the price system.<sup>51</sup> Machinery prices were reduced in 1970, 1972, and 1973 (by an average of 12 percent in 1973); prices in light industry were raised by 7 percent in 1973; and prices were revised for ferrous metals, petroleum, timber, reinforced concrete, some food products, and freight transportation. In most cases, prices were more finely differentiated by grade and quality characteristics. In machinery, much was done (it is claimed) to remove the positive correlation between weight and price, which had led to the production of excessively heavy machines. In 1974, a revised "Methodology" was promulgated for setting prices on new products and new technology. The main changes involved providing for quality markups and discounts and covering a larger share of startup costs in the initial price.

Despite all this fine tuning of these transfer prices, complaints about their perverse affects are epidemic, along with a variety of suggestions on how to remove them. Attempts to set "limit" prices and "sliding" prices seem to have had undesired effects, and evidently they are not much used. Complaints about the system of quality markups are legion: they are too small, they remain in effect for too short a period; old products yield more profits than new or high-quality ones, and they do not encourage an enterprise to make small improvements in the quality of old products. Despite the tinkering with prices, there are still "profitable" and "unprofitable" products; enterprises naturally strive to produce the former and avoid producing the latter, irrespective of demand. The relationship between price and utility remains tenuous and elusive to measure. Despite all manner of strictures, prices for machinery are rising, both on the average and per unit of productivity, according to assertions in numerous Soviet sources. Finally, the process of getting prices and designs approved entails a mass of red tape and much delay, further hampering the effort to upgrade product quality and introduce new technology.

## Finance

The 1965 reforms provided for the more extensive use of “financial levers” to spur efficiency. This approach involved (1) the introduction of a charge on capital, (2) delegation of some decisionmaking authority over investment to enterprises, (3) increased self-financing of enterprise investment and related activities from profits rather than budget grants, and (4) much more extensive use of bank credit in enterprise finance. In the early years of the reform, the share of decentralized investment rose sharply—from 12 percent in 1965 to 19.5 percent in 1972. Subsequently, the authorities cut back on this type of investment, and its share declined steadily to 16 percent in 1975. This form of investment has now been integrated with state centralized investment, and evidently is no longer considered as a separate category.<sup>52</sup> In industry, much of this type of investment was supposed to be financed from newly created enterprise “production development” funds formed mainly from enterprise profits and a portion of amortization deductions, the assumption being that enterprises would be encouraged to adopt and finance new technology and rationalization measures from their “own” funds. In practice, the fund has become the subject of much controversy, both theoretical and practical. The methods for financing it have been changed several times, and its expenditure has been brought completely within the confines of annual plans. Like so many cases in the past, this is one more instance of decentralization, followed by creeping (or galloping) recentralization. In any event, the fund is small, amounting only to about 12 percent of industrial investment in 1976.

With respect to bank credit, the aim was to reduce the role of state budget financing of enterprise investment and working capital and raise the role of bank credits. If enterprises had to pay interest on credits, now treated as a charge against profits, then presumably they would use their capital more efficiently. Thus, credit was to be still one more of the economic “levers” designed to elicit more efficient performance. After a decade, there seems to be general agreement that the so-called “financial-credit mechanism” has been largely ineffective, and numerous proposals are being made on how to “improve” it. The banks have greatly strengthened their monitoring of enterprise activities, necessitated because interest rates have been raised and differentiated (complicated) and the banks have been enjoined to see to it that credits are used only for “right” purposes and to help in the process of bringing to light reserves within enterprises for increasing output, raising efficiency, or fulfilling whatever campaign is currently in vogue (for example, producing consumer goods). In fact, also, the role of bank financing of state centralized investment has been growing very slowly; its planned share was a mere 2.3 percent in 1973 and 5.2 percent in 1976; the share of long-term

credit in the financing of total investment is planned to be 9.3 percent in 1977, compared with 5.2 percent in the 1976 plan.<sup>53</sup> The total amount of credits granted annually for “new technology, expansion of production of consumer goods, and similar measures” actually declined during 1971-76, probably because such measures can also be financed from enterprise “production development” funds.

#### Management of Research and Development and Innovation

The general economic reform of 1965 and a specific reform in 1968 made numerous changes in the management of this chronic problem area in the economy. The complexity of the changes precludes anything more than a summary sketch.<sup>54</sup> The major points of emphasis follow: (1) planning of R&D was to be carried out on a long-term basis, using long-range scientific and technical forecasts; was to be more carefully integrated into general economic planning; and was to center around key complexes of projects (240 in the Ninth FYP); (2) R&D activities were to be reorganized by integrating institutes working on related problems and by forming science-production associations to tie R&D more closely to production; (3) *khozraschet* status was to be extended in R&D activity by establishing unified funds at the ministry level for financing its R&D programs; (4) efforts were to be made to calculate the economic return on individual R&D projects and to set prices and gear the system of rewards to scientists to this expected return; (5) the use of contracting arrangements for accomplishing R&D projects was to be greatly expanded. All these measures have been introduced into practice to one degree or another. Measures related to planning and to establishment of science-production associations were considered above. The 10th FYP, for the first time, is said to incorporate explicitly a number of coordinated projects, with assignments from research to final production specified in detail.<sup>55</sup> In respect to financing R&D work, contracting seems to have grown considerably; indirect evidence is that the share of total science outlays financed by the budget item “Science” dropped from 55 percent in 1970 to 45 percent in 1976. Thus far, the extension of *khozraschet* in R&D activities has entailed (besides contracting) the establishment of centralized R&D funds in five ministries, in addition to the Ministry of the Electrical Equipment Industry, which pioneered the experiment. Despite glowing reports of its beneficial affects, this experiment is the subject of much controversy—over methods of financing, how to calculate the economic return on projects and embody it in the financial terms of contracts, and how to structure incentive awards to employees. In summary, this massive assault on the intractable R&D and innovation problem is still (after 10 years) in the implementation stage and very much in a state of flux. Meanwhile, the press continues to provide

evidence that the characteristic fetters on the innovation process are widely prevalent.<sup>56</sup>

### **Impact of Managerial Reforms**

Initially, the 1965 economic reforms seemed to entail some measure of decentralization and greater scope for spontaneous and independent action by producers in response to price and profit signals. As Kosygin emphasized, however, the reforms were to be carried out within a framework of overall central planning, and the implementation of the reforms was turned over to a strengthened, highly centralized state bureaucracy. The restoration of the economic ministries and the centralization of responsibility for some key functions in newly created state committees had a positive impact, eliminating the near-chaotic situation created by Khrushchev's organizational innovations. The implementation of other aspects of the reforms, however, has been characterized by considerable recentralization of decisionmaking authority, removal of elements of spontaneity, and increasing complexity in decision-making rules and related incentives. None of the changes has altered the nature of the economic system in any important respect; it remains one of directive central planning, highly centralized administration of producing units, state-fixed prices, rationing of materials and equipment, and incentives geared to fulfilling state plans.

The many changes in administrative and economic working arrangements adopted over the past decade, implemented primarily in the nonagricultural sectors, were aimed explicitly at solving several longstanding problems in the economy. First of all, they were intended to raise growth rates of productivity of labor and capital, which had deteriorated seriously during 1961-65. Although moderate improvement in productivity of labor and capital has been achieved in the nonagricultural sectors since 1965, growth rates for output continue to decline, and productivity growth is slow compared with Soviet performance before 1960 and with Western experience. Productivity growth continued to be sluggish in 1976 and 1977. In 1971-75, growth rates for labor productivity improved somewhat over 1966-70, but the record for capital productivity worsened, and its growth rates continue to be negative. The contribution of the economic reforms to the moderately better productivity performance, if any, is difficult to assess. Relative stability in organizational arrangements surely was a positive factor. In industry, the reform's stress on labor productivity, along with strong administrative pressure, probably contributed to higher growth rates for this factor. Considering the scope of the assault of the productivity problem, the gains achieved seem small.

Many of the reform measures were designed to attack chronic problems associated with the R&D process. Research and development has been

conducted with inordinate delays, by organizations administratively apart from the production process, and because of the system of economic incentives enterprise managers have resisted innovation and new technology. Thus far, the many-faceted reforms have done little to alleviate this longstanding problem. Because rewards are still tied to fulfillment of current plans for production, however measured, managers continue to try to avoid adopting new technology. Because of prevalent aberrations in pricing and incentives—despite the many tinkering—producers remain reluctant to produce new products. New technology frequently proves to be more costly and less productive than the technology it replaces. Finally, the 130 science-production associations created thus far can have had little overall impact as yet.

Reorganization of the centralized system for rationing producer goods, along with more effective use of interfirm contracts, was aimed at ridding the system of one of its most intractable problems—the inability to supply needed materials and equipment to enterprises in a timely manner and in the desired product mix. While the centralization of supply functions evidently has had some benefits, supply seems still to be the chief problem for enterprise managers. Contractual arrangements are proving to be difficult to enforce in a continuing environment of taut planning and sellers' markets. An embryonic attempt to do away with the rationing system altogether for a few products was quickly aborted, and there are no signs of any intent to move in that direction. Informal arrangements among enterprises, such as the ubiquitous *tolkachi* (pushers) are still prevalent, along with chronic complaints about familiar malfunctions in the “reformed” state supply system.

Low quality, obsolete style, and poor design have long been typical of Soviet manufactured goods, particularly consumer goods. Many of the reform measures were aimed at alleviating this chronic problem. When the new pricing arrangements and success criteria of the original 1965 reforms failed to yield significant improvement, the authorities adopted a new and more complex set of rules, which were again modified to give effect to the 10th FYP's label, “The Plan of Efficiency and Quality.” The new approach to the quality problem has produced a flurry of statistics showing remarkable increases in the output of superior quality products in a number of ministries. Despite these claims, poor product quality continues to be a persistent complaint of consumers and producers alike, and Soviet manufactured goods remain largely unsalable in Western markets.

A key aspect of the reforms has been the successive revision of the system of success indicators for enterprises and the determinants of managerial rewards. In their efforts to stimulate one or another desired activity and/or to remove behavioral aberrations created by previous rules, the planners have created an incentive system of incredible complexity. Incentive funds and

bonuses are affected by enterprise performance as measured by many discrete plan targets and underlying variables. In practice, there must be trade-offs among these multiple success indicators, whether formally specified or not. The excessive complexity of incentive arrangements, along with the vagaries of Soviet prices and continued pressure on enterprises to march forward simultaneously on all fronts, severely reduces the efficacy of pecuniary incentives to elicit desired behavior. This factor surely is a major reason for the disappointing results obtained thus far from the many-faceted attacks on the USSR's chronic problems related to efficient use of its economic resources.

All of these perennial efficiency-related problems are also being attacked anew via the latest "reform by reorganization"—the merger of enterprises into various types of large associations. This program is still in a state of flux, and its impact is difficult to assess. On the one hand, the press reports sizable gains in output and productivity achieved by individual associations, compared with the average for their industries; on the other hand, there is much evidence that the whole program is being implemented formalistically and at a snail's pace, due to bureaucratic inertia and resistance. Many of the changes seem to amount, once again, merely to "changing labels on doors." Initially, at least, this latest reorganization probably is creating considerable confusion and uncertainty and putting severe strains on the USSR's scarce supply of skilled, managerial talent.

In sum, the beneficial results of the multiple tinkerings with administrative organization and management over the past decade have been minimal at best. Predictably, the Party has responded by stepping up pressure for "discipline" of all kinds, emphasizing "moral" incentives rather than material incentives, launching Party-directed campaigns to accomplish one or another objective (producing more consumer goods, saving fuel), stressing Socialist competition and emulation of "progressive" experience, and, finally, strengthening its own role in the day-to-day conduct of economic affairs.

### **Prospects**

Despite the revival of some discussion of economic reform in the Party press in 1976, the likelihood of radical changes in the established system of economic organization and management is remote at present. In respect to organization, discussions are taking place on the desirability of creating supraministries of some kind to manage groups of related activities. No concrete steps have yet been taken in this direction, and the whole idea is likely to encounter strong bureaucratic opposition. The scheme is reminiscent of Khrushchev's piling up of coordinating bodies and, even if implemented, is likely to do more harm than good.

The leadership seems fully committed to pushing the merger of producing units into ever-larger entities. In the industrial sector, this movement is in full swing and is scheduled to be completed by 1980. It is unlikely that large gains in efficiency will come from this source. The initiative and independence of individual producing units will be severely restricted in favor of greater power for the production associations. What is more important, it seems clear that the associations and their components will be operating within an essentially unchanged economic environment. Hence, their behavior is likely to resemble that of their predecessor independent enterprises. Moreover, the associations are likely to receive detailed and tight supervision from the industrial associations, as well as the ministries, which are ultimately responsible for the performance of their sectors and whose powers are actually being strengthened. The ministries are the organizations that administer the system of rewards and penalties for the associations. In agriculture, the giant collective and state farms, which are coming to resemble one another more and more, will remain the basic form of organization. Sizable extension of the private sector in agriculture and services does not seem likely, even though present policy shows more tolerance toward this activity.

No fundamental reform of economic incentives is currently under active discussion. At the 25th Party Congress, Brezhnev stressed the importance of rewarding enterprises and workers for "final" (net) results, rather than gross output, and experiments to test such measures are continuing. Although further modifications of success criteria are likely, the benefits will be inconsequential, as long as incentives remain tied to fulfilling plans for whatever target or targets. The cutting of this Gordian knot is not being seriously advocated, at least in the open press. Because rewards are linked directly to fulfilling plan targets, variously defined, the relationships among units in the entire chain of suppliers, shippers, manufacturers, and distributors are administrative, rather than economic, in nature. The behavior of each unit is oriented toward meeting its own particular plan targets, rather than satisfying its clients. This perverse effect of incentives is reinforced by the fact that each link also is aware that its clients lack alternative suppliers, shippers, or customers—there is no competition.

In the Directives for the 10th FYP, the present conservative leadership has opted for continuance of the status quo. Although experimentation with organizational forms and incentive schemes is continuing, they do not entail any essential modification of the traditional system. Since the Soviet Union's persistent difficulties with efficiency, technical progress, and product quality are rooted in the nature of the bureau-administered economic system itself, these problems are likely to persist and to defy solution through modification of organizational forms and administrative rules. These chronic difficulties will be reflected in a continuing sluggish growth of productivity.

In the long run, radical economic reforms involving the introduction of market arrangements in some form might help alleviate these chronic problems and raise the rate of productivity growth. To be effective, such reforms would have to include abolition of directive plans for enterprises, replacing the rationing of most producer goods with markets, freeing most prices, and introduction of profit-based incentives. Transition to such a "market socialism" would surely cause serious economic disruptions in the short run, including inflation and unemployment. Moreover, such a move would disturb established balances in both political and economic power. It would be strongly opposed by the state bureaucracy, where jobs, careers, and political influence would be at stake, as well as by the Party bureaucracy, whose control over economic decisionmaking and resource allocation would be threatened. Faced with uncertain long-run benefits, probable high short-run costs, and certain strong opposition, a Soviet leadership of any foreseeable composition would probably opt against taking such risks. The political leadership probably would consider such a radical move, only if faced with a severe economic crisis, such as stagnating or declining production or serious popular unrest. As long as present organizational arrangements continue to yield modest, even if declining, rates of growth, the leadership will probably prefer to put up with the familiar deficiencies of the systems, rather than to launch major changes with unknown payoffs and known political risks.



## Appendix

### SOURCE REFERENCES

1. This paper updates the most recent, comprehensive survey of developments in Soviet economic organization and management, which is to be found in Gertrude E. Schroeder, "Recent Developments in Soviet Planning and Incentives," in Joint Economic Committee, *Soviet Economic Prospects for the Seventies*, Washington, Jun 1973, pp. 11-38.

2. *Voprosy ekonomiki*, No. 10, 1976, p. 106.

3. *Planovoye khozyaystvo*, No. 8, 1977, p. 157.

4. *Vestnik statistiki*, No. 5, 1977, p. 10.

5. For example:

*Planovoye khozyaystvo*, No. 5, 1974, pp. 28-34.

*Pravda*, 14 Jul 1975, 30 May 1976.

*Planovoye khozyaystvo*, No. 7, 1976, pp. 133-136; No. 8, 1976, pp. 3-7; No. 6, 1977, pp. 58-70; No. 7, 1977, pp. 3-7; No. 8, 1977, pp. 65-72.

6. *Planovoye khozyaystvo*, No. 6, 1977, p. 81.

7. *SSSR v tsifrakh v 1976 godu*, 1976, pp. 177, 179.

8. *Pravda*, 3 Apr 1973.

9. *Vestnik statistiki*, No. 7, 1977, p. 93.

10. *Planovoye khozyaystvo*, No. 8, 1977, p. 24.

11. *Pravda*, 11 Jun 1977.

12. *Planovoye khozyaystvo*, No. 8, 1977, p. 24.

13. The following are typical of recent reporting:

*Ekonomika i organizatsiya promyshlennogo proizvodstva*, No. 4, 1976, pp. 35-42; No. 2, 1976, pp. 154-168.

*Pravda*, 30 Dec 1975, 2 Feb 1976, 14 Mar 1977, 12 Apr 1976, 28 May 1977, 11 Jun 1977.

*Voprosy ekonomiki*, No. 12, 1976, pp. 71-81; No. 2, 1977, pp. 47-55.

*Khimicheskaya promyshlennost*, No. 6, 1976, pp. 67-72.

- Ekonomicheskaya gazeta*, No. 25, 1975, p. 8; No. 15, 1975, p. 14; No. 25, 1977, pp. 1-8 (insert).  
*Izvestiya*, 18 Sep 1975.  
*Finansy SSSR*, No. 1, 1976, pp. 47-54; No. 2, 1976, pp. 47-54; No. 2, 1976, pp. 28-33.  
*Planovoye khozyaystvo*, No. 5, 1975, pp. 6-17.  
 For evidence for earlier years see Alice C. Gorlin, "Industrial Reorganization: the Associations," in Joint Economic Committee, *Soviet Economy in a New Perspective*, Washington, 1976, pp. 162-188.
14. *Narodnoye khozyaystvo SSSR v 1972 godu*, 1973, p. 159.  
*Vestnik statistiki*, No. 7, 1977, p. 93.
  15. *Narodnoye khozyaystvo SSSR v 1975 godu*, 1976, p. 189.
  16. *Ekonomicheskaya gazeta*, No. 14, Apr 1973, pp. 1-8 (insert).  
*Sobraniye postanovlenniy pravitel'stva soyuza sovetskikh sotsialisticheskikh respublik*, No. 2, 1976, pp. 18-63.
  17. *Sotsialisticheskaya industriya*, 4 Aug 1977.
  18. *Voprosy ekonomiki*, No. 6, 1977, p. 112.
  19. *Planovoye khozyaystvo*, No. 8, 1977, p. 26.
  20. *Kommunist*, No. 18, 1976, pp. 70-81.  
*Pravda*, 6 Jul 1977, 17 Mar 1977.  
*Voprosy ekonomiki*, No. 12, 1976, pp. 82-93; No. 2, 1977, pp. 56-65.
  21. *Ekonomicheskaya gazeta*, No. 23, Jul 1972, pp. 15-16.
  22. *Ekonomicheskaya gazeta*, No. 50, Dec 1976, pp. 1-8 (insert).
  23. *Pravda*, 28 Mar 1977.
  24. *Pravda*, 13 Jun 1974. For later amendment, see *Ekonomicheskaya gazeta*, No. 36, 1977, p. 16.
  25. *Izvestiya*, 5 Dec 1970.
  26. *Pravda*, 7 Dec 1975.
  27. *Standarty i kachestvo*, No. 9, 1975, p. 4.
  28. *Izvestiya*, 15 Aug 1975.
  29. A good recent description of the measures for stimulating the production of better quality goods is given in *Den'gi i kredit*, No. 5, 1975, pp. 44-56.
  30. *Kommunist Sovetskoy Latvii*, No. 11, 1976, pp. 24-38.

31. *Finansy SSSR*, No. 12, 1976, p. 11
32. *Ibid.*
33. *Ibid.*
34. *Planovoye khozyaystvo*, No. 3, 1976, p. 46.
35. *Referativniy zhurnal, seriya ekonomika*, No. 3, 1976, p. 65.  
*Ekonomicheskaya gazeta*, No. 7, 1977, p. 15.
36. *Sotsialisticheskaya industriya*, 26 Sep 1976.
37. *Pravda*, 3 May 1977.
38. *Narodnoye khozyaystvo SSSR za 60 let*, 1977, p. 149.
39. *Ibid.*
40. The following are typical of recent reporting on these computer networks:  
*Ekonomika i organizatsiya promyshlennogo proizvodstva*, No. 2, 1976, pp. 122-136.  
*Planovoye khozyaystvo*, No. 5, 1977, pp. 3-17, 41-48; No. 8, 1977, pp. 73-80; No. 5, 1976, pp. 3-7, 46-53; No. 8, 1976, pp. 8-16; No. 1, 1976, pp. 11-22; No. 3, 1975, pp. 68-73.  
*Voprosy ekonomiki*, No. 2, 1975, pp. 121-129; No. 3, 1975, pp. 107-116.  
*Vestnik statistiki*, No. 6, 1975, pp. 3-8; No. 6, 1976, pp. 63-71.  
*Ekonomicheskaya gazeta*, No. 30, Jul 1976, p. 15; No. 2, Jan 1974, p. 8.  
*Izvestiya*, 8 Mar 1974.
41. The following are typical of recent press reporting on computer-related problems:  
*Ekonomicheskaya gazeta*, No. 3, Jan 1977, p. 17; No. 30, Jul 1976, p. 15.  
*Pravda*, 9 Apr 1976, 19 Nov 1975, 9 Jun 1974.  
*Ekonomika i organizatsiya promyshlennogo proizvodstva*, No. 2, 1976, pp. 122-136; No. 6, 1974, pp. 87-96.  
*Izvestiya*, 22 Aug 1975, 18 Sep 1974, 7 Sep 1974.  
*Voprosy ekonomiki*, No. 7, 1974, pp. 79-89; No. 1, 1975, pp. 44-55.  
*Trud*, 15 Oct 1976.  
*Pravda vostoka*, 19 Jun 1976.  
*Sotsialisticheskaya industriya*, 1 Jan 1975.  
*Planovoye khozyaystvo*, No. 5, 1977, pp. 48-53.
42. *Planovoye khozyaystvo*, No. 4, 1976, pp. 101-107.

43. *Ibid.*, No. 5, 1977, p. 48.
44. *Izvestiya*, 16 April 1976.
45. V. S. Kurotchenko, *Material'no-tekhnicheskoye snabzheniye v novykh usloviyakh khozyaystvoraniya*, 1975, p. 13.
46. *Ekonomicheskaya gazeta*, No. 23, Jun 1977, p. 10.
47. For a detailed description and documentation of the reforms in supply and their results see Gertrude E. Schroeder, "The 'Reform' of the Supply System in Soviet Industry," *Soviet Studies*, Jul 1972, pp. 97-119.
48. *Izvestiya*, 18 Apr 1976.
49. *Material'no-tekhnicheskoye snabzheniye*, No. 9, 1975, pp. 22-34.
50. The price reform and its consequences are discussed and documented in detail in Gertrude E. Schroeder, "The 1966-67 Soviet Industrial Price Reform: A Study in Complications," *Soviet Studies*, Apr 1969, pp. 462-477, and Morris Bornstein, "Soviet Price Policy in the 1970's," in Joint Economic Committee, *Soviet Economy in a New Prospective*, Washington, Oct 1976, pp. 17-66.
51. This discussion concerns only wholesale prices. Changes in these prices, as well as in agricultural procurement prices, were effected without changing the relevant retail prices. As a consequence, subsidies financed from state budget funds have mounted rapidly. Those on meat and milk products alone are scheduled to total 100 billion rubles during 1976-80. *Planovoye khozyaystvo*, No. 7, 1977, p. 17.
52. *Finansy SSSR*, No. 12, 1976, p. 13. Unlike previous handbooks, *Narodnoye khozyaystvo SSSR za 60 let* does not report data for centralized investment.
53. *Finansy SSSR*, No. 12, 1976, p. 13.
54. For a more complete discussion of these reforms, see Joseph S. Berliner, *The Innovation Decision in Soviet Industry*, Cambridge, MIT Press, 1976, pp. 97-154, and Louvan E. Nolting, *The 1968 Reforms of Scientific Research, Development and Innovation in the USSR*, US Department of Commerce, Bureau of Economic Affairs, Foreign Economic Report No. 11, Sep 1976.
55. *Izvestiya*, 20 Jan 1976.

56. The following sources are typical of recent reporting:

*Kommunist*, No. 4, 1977, pp. 48-59.

*Voprosy ekonomiki*, No. 5, 1977, pp. 113-125.

*Pravda*, 23 Sep 1976, 9 Oct 1976, 16 Nov 1976, 26 Nov 1976, 21 May 1977, 6 Sep 1977.

*Ekonomicheskaya gazeta*, No. 12, Mar 1977, p. 9; No. 51, Dec 1976, p. 14; No. 12, Mar 1977, p. 9; No. 51, Dec 1976, p. 14; No. 32, Aug 1977, p. 10; No. 18, Apr 1977, pp. 5-6.

*Literaturnaya gazeta*, 17 Aug 1977, p. 10, 23 Mar 1977, p. 10.

*Izvestiya*, 9 Jun 1977, 11 Feb 1977.